

**WHAT IS CLAIMED IS:**

1. A method for scanning microscopy comprising the steps of:
  - illuminating a specimen that contains at least one fluorescent dye, using illuminating light;
  - detecting the detection light proceeding from scan points of the specimen, using a spectral detector that generates spectral data for each scan point;
  - determining from the spectral data an amplitude value for each fluorescent dye; and
  - transferring the amplitude values to a processing module.
2. The method as defined in Claim 1, wherein the step of illuminating encompasses scanning of the scan points of the specimen with illuminating light.
3. The method as defined in Claim 1, wherein the scanning is accomplished sequentially.
4. The method as defined in Claim 1, wherein the scanning is accomplished at least partially simultaneously.
5. The method as defined in Claim 4, wherein the scanning is accomplished line-by-line.
6. The method as defined in Claim 1, wherein the spectral detector encompasses a grating spectrometer or prism spectrometer.
7. The method as defined in Claim 1, wherein the spectral detector encompasses a multiband detector.

8. The method as defined in Claim 1 comprising the further step of: determining from the spectral data the at least one fluorescent dye contained in the specimen.
9. The method as defined in Claim 8, wherein the determination of the at least one fluorescent dye contained in the specimen encompasses a comparison of the spectral data to reference data stored in a memory module for various fluorescent dyes.
10. The method as defined in Claim 1 comprising the further step of: reconstructing the spectral data in the processing module from the transferred amplitude values.
11. A scanning microscope comprising:  
a light source that emits illuminating light for illumination of a specimen that contains at least one fluorescent dye, a scanning device for scanning scan points of the specimen, a spectral detector for detecting the detection light proceeding from the scan points, the spectral detector generating spectral data for each scan point, a module for determining, from the spectral data, an amplitude value for each fluorescent dye; and means for transferring the amplitude values to a processing module.
12. The scanning microscope as defined in Claim 11, wherein the scanning is accomplished sequentially.
13. The scanning microscope as defined in Claim 11, wherein the scanning is accomplished at least partially simultaneously.
14. The scanning microscope as defined in Claim 11, wherein the scanning is accomplished line-by-line.

15. The scanning microscope as defined in Claim 11, wherein the spectral detector encompasses a grating spectrometer or prism spectrometer.
16. The scanning microscope as defined in Claim 11, wherein the spectral detector encompasses a multiband detector.
17. The scanning microscope as defined in Claim 11, wherein the at least one fluorescent dye contained in the specimen can be determined from the spectral data.
18. The scanning microscope as defined in Claim 17, wherein a memory module is provided, and the determination of the at least one fluorescent dye contained in the specimen encompasses a comparison of the spectral data to reference data that can be stored in a memory module for various fluorescent dyes.
19. The scanning microscope as defined in Claim 11, wherein the spectral data can be reconstructed in the processing module from the transferred amplitude values.